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TITLE OF THE INVENTION: **EXERCISE APPARATUS**

SPECIFICATION: **14 PAGES**

DRAWINGS: **5 SHEETS (12 FIGURES)**

CLAIMS: **2 PAGES**

**1 INDEPENDENT  
4 DEPENDENT  
5 TOTAL**

ABSTRACT OF THE DISCLOSURE: **1 PAGE**

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## **SPECIFICATION**

### **TITLE OF THE INVENTION**

Exercise Apparatus

### **CROSS-REFERENCE TO RELATED APPLICATIONS**

- 5 Not applicable.

### **BACKGROUND OF THE INVENTION**

The present invention relates to exercise apparatus, and particularly to portable exercise apparatus.

Heretofore, ballet bars have been used in performing exercises. However, such ballet bars  
10 are usually wall-mounted so that they are not portable. Nor are they adjustable for the height of the user or the needs of a particular exercise.

### **SUMMARY OF THE INVENTION**

The portable exercise apparatus of the present invention comprises:

- a. at least one removable, horizontal user gripping bar for supporting at least portion  
15 of the force generated by a user during exercise;
- b. a vertical frame capable of supporting at least portion of the force generated by a user during exercise comprising
  - i. a free-standing vertical rear support frame and
  - ii. at least one pair of vertical side support frames pivotally attached to said rear  
20 support frame; and
- c. at least one user support base having opposing sides and opposing ends and capable of supporting at least a portion of the force generated by a user during exercise,

each user gripping bar being removably attached to each of said pairs vertical side support frames; and

said opposing sides of said user base being removably attached to each of said pairs of vertical side support frames and one end of each user base abutting said vertical rear support frame.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is a front elevation view of the apparatus of the present invention;

Fig. 2 is a front elevation view, in front perspective, of the back sheet and the top user support member of the present invention;

10 Fig. 3 is a front elevation view, in front perspective, of the user gripping bar of the apparatus of the present invention;

Fig. 4 is a front elevation view, in front perspective, of the user support base of the apparatus of the present invention;

15 Fig. 5 is a fragmentary side elevation view, in section, of the edge of the user support base of the apparatus of the present invention;

Fig. 6 is a side elevation view of one of the side support frames of the apparatus of the present invention;

Fig. 7 is a side elevation view of an alternative embodiment of the apparatus of the present invention;

Fig. 8 is a side elevation view of another alternative embodiment of the apparatus of the present invention;

Fig. 9 is a front elevation view of an alternative embodiment of a back sheet of the apparatus of the present invention;

5 Fig. 10 is a side elevation view, partially in section, illustrating a user performing a first exercise with the apparatus of the present invention;

Fig. 11 is a side elevation view, partially in section, illustrating a user performing a second exercise with the apparatus of the present invention; and

Fig. 12 is a side elevation view, partially in section, illustrating a user performing a third  
10 exercise with the apparatus of the present invention.

## **DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Generally, and as shown in Figs. 1-7 and 8-12 for illustrative purposes, the portable exercise apparatus 1 of the present invention comprises:

a. at least one removable, horizontal user gripping bar 2 for supporting at least portion  
15 of the force generated by a user during exercise;

b. a vertical frame 4 capable of supporting at least portion of the force generated by a user during exercise comprising

i. a free-standing vertical rear support frame 10 and

ii. at least one pair of vertical side support frames (30 and 32 or 34 and 36)

20 pivotally attached to said rear support frame 10; and

c. at least one user support base 6 having opposing sides and opposing ends and capable of supporting at least a portion of the force generated by a user during exercise,

each user gripping bar 2 being removably attached to each of said pairs of vertical  
5 side support frames; and

said opposing sides of said user base 6 being removably attached to each of said pairs of vertical side support frames and one end of each user base 6 abutting said vertical rear support frame 10.

The apparatus 1 may further comprise the user gripping bar 2 being vertically adjustable

10 at a plurality of discrete vertical positions. Preferably, the apparatus 1 is freestanding and stowable. Optionally, the apparatus 1 may be provided with one or more pairs of stabilizing legs 8. This invention also contemplates an apparatus 1 in which a second pair of vertical support frames 34 and 36 is mounted on the rear of the free-standing vertical rear support frame 10 and a second support base 7 is provided for attachment to that

15 second pair of vertical support frames 34 and 36 as will be described later.

The horizontal gripping bar 2 acts as a horizontally oriented support against the

application of force by the user. That force may be applied to the bar 2 by the user's

actions along force vectors normal to the longitudinal central axis of the bar and toward or away from the bar, including, for example, force applied vertically upward normal to

20 the longitudinal central axis of the bar, vertically downward normal to the longitudinal central axis of the bar, laterally forward normal to the longitudinal central axis of the bar, and laterally backward normal to the longitudinal central axis of the bar. Also, the force can be applied at an angle other than a normal. The bar 2 comprises a cylinder with a

diameter smaller than the apertures 38, 40, and 42 in the side support frames 30 and 32 and a length longer than the maximum transverse distance between the side support frames 30 and 32 so that the height of the bar 2 from the base 6 can be adjusted by sliding the bar 2 out of one set of apertures, such as 38, moving it to another, such as 40, and 5 then sliding it into the other set of apertures 40. While the bar 2 is preferably cylindrical in cross-section, it might be of another cross-section, such as polygonal if desired.

The vertical support assembly 4 comprises a freestanding vertical rear support frame 10 and a pair of vertical side support frames 30 and 32 hinged to the front side edges 12 of the freestanding rear support frame 10 so that the side support frames 30 and 32 can be 10 folded toward, and preferably into the rear support frame 10 for portability and stowage. The hinges (not shown) define a vertical axis about which the side support frames rotate in opening into the operative position of the apparatus 1 and in closing into the folded position. These vertical axes of rotation are parallel to each other and, preferably, positioned within the peripheral outline of the freestanding rear support frame 10. In 15 conjunction with the bar 2 and the base 6, the vertical support assembly 4 acts as a force containment cage so that the force or forces generated by the user can be at least borne by the apparatus 1, and preferably contained within the apparatus 1.

The free-standing rear support frame 10 comprises a rectangular back sheet 12 held in position by a top user support member 14. The rectangular back sheet 12 extends 20 vertically from proximity to the bottom of the apparatus 1 to abutment to the bottom of the top member 14 so that the user can be supported at any point of their anatomy that may be at a height sufficient to contact the freestanding rear support frame 10. This is illustrated in Figs. 10 and 11 in which in Fig. 10 a user U performs a first exercise using

the apparatus 1 in which the user makes contact with the back sheet to a certain height and then in Fig. 11 the user U performs a second exercise using the apparatus 1 in which the user makes contact with the back sheet to a different height, thereby illustrating the need for the aforesaid extension of the back sheet vertically from proximity to the bottom  
5 of the apparatus 1 to abutment to the bottom of the top member. The rectangular back sheet 12 also prevents racking and the top user support member 14 stiffen the back sheet 10 against flexing. If desired and as illustrated in Fig. 9, an alternative embodiment of the back sheet structure may be provided in which the back sheet 12 may be provided with side support members 16 and 18 and bottom member 20, as well as the top support  
10 member 14. In this embodiment, each of the side frame members 16 and 18 is provided with hinges for its associated vertical side support frame 30 or 32 to pivot on.

Each of the side support frames 30 or 34 comprises a foot member 44, a pair of horizontally spaced apart, parallel vertical support members 46 and 48, a horizontal top member 50 and at least one horizontal brace member 52 and is mirror image symmetrical  
15 with respect to the other frame of the pair. The front vertical support 48 of the side support 30 or 32 frame is provided with a plurality of horizontally extending adjustment apertures 38, 40, and 42 so that the vertical height of the user gripping bar 2 can be adjusted in accordance with the height of the user or the requirements of the exercise the user is performing. The horizontal top member 50 and the horizontal brace members 52  
20 provide additional and supplemental user support. The horizontal brace members 52 also provide handle function. The foot member 44 extends forward of the front vertical 48 support to give the apparatus 1 stability against tipping forward. Alternatively, the side

support frames 30 and 32 may comprise a rectangular sheet or panel with the plurality of apertures 38, 40, and 42.

The user support base 6 comprises a rectangular sheet that holds the two vertical side support frames 30 and 32 in position when they are in their operative open position. The

5 opposed, lateral side edges 6a (Fig. 5) are provided with channels 6b to effect attachment between the support base 6 and the foot members 44 of the two vertical side support

frames 30 and 32. When installed between the two feet 44 of the vertical frames 30 and

32, the base 6 extends forward of the front end of the feet members. The length of the

support base 6 is advantageously extended to a distance wherein a user may stand with

10 the front extremity of the foot adjacent or in abutting contact with the front edge of the

base 6. This is illustrated in Fig. 12 in which a user U performs a third exercise in which

the tip of the user's foot abuts the front edge of the support base 6. Optionally, a support

base extension 54 in the form of a rectangular planar sheet may be provided for

removable attachment to and extension of the front edge of the support base 6 to allow

15 user to rest a lower portion of their body against the extension 54. This is illustrated in

Fig. 10 in which a user U performs an exercise using a support base extension in which

the user's lower back is supported by the support base extension 54, and in Fig. 11 in

which a user U performs an exercise using a support base extension 54 in which the

user's lower leg is supported by the support base extension 54.

20 Optionally and as may be seen in Fig. 8, the apparatus 1 may be provided with one or

more pairs of stabilizing legs 8. Each leg 8 is apertured at its upper end 8a for attachment

to its side support frame 30. The lower end 8b of each leg 8 may be chamfered at an

angle that permits the end surface of the leg to rest substantially flat on the surface on

which the entire apparatus 1 rests. The vertical space between the top member 50 of each side frame 30 or 32 and the first brace member 52 beneath it may be provided with a vertically extending support web 52a. The web 52a is provided with at least one vertically extending slotted aperture 52b. Each leg 8 extends angularly forwardly and 5 downwardly from the slotted aperture 52c to the support surface on which the apparatus 1 rests. Each leg 8 is adjustably mounted to the web 52a by the shaft of a bolt (not shown) passing through the slot 52b and an aperture 8c in the leg and held in place by the head of the bolt and a nut (not shown) threaded onto the bolt. Even more preferably, the apparatus 1 is provided with two pairs of stabilizing legs, a front pair 8 as previously 10 described, and a rear pair 9 that extends angularly rearward and downwardly from a second, or rear, vertically extending slotted aperture 52c to the support surface on which the apparatus 1 rests. The length of each slotted aperture 52b and 52c is sufficient to permit the upper end of the associated leg 8 or 9 to be slid upwardly and the associated leg to be rotated into a vertical orientation with the lower tip flush with the associated 15 foot member 44 and the upper end to rest at a position whose vertical height is less than or equal to the height of the top of the top member 14 of the rear support frame 10.

In an alternative embodiment, the vertical support assembly comprises a freestanding vertical rear support frame 10 and a pair of vertical side support frames hinged to the front side edges of the free-standing rear support frame 10 as aforesaid, and a second pair 20 of vertical side support frames 34 and 36 hinged to the rear side edges of the free-standing rear support frame 10 (so that the rear side support frames can be folded toward, and preferably into the vertical frame for portability and stowage.) This construction permits two users to use the apparatus 1 at the same time and, since they are facing each

other, each may use their side, or station, independently of the other. In this embodiment, the front station (as described with respect to the first embodiment) and the rear station (which uses the same components as the first embodiment save for the vertical frame which is shared in common) are mirror image symmetrical with respect to each other. In 5 this embodiment, legs may not need to be provided.

In use, the user may use the apparatus 1 of Figs. 1-6, and 8-12 or one or both stations of the apparatus 1 of Fig. 7 for a number of exercises. In addition to the exercises that a user can perform using the fixed height of the prior art ballet bar, the user can vary the height of the gripping bar 2 using the adjustment apertures on the vertical supports. More 10 significantly, the user can perform exercises in which the user is seated on the base 6 support facing forward with their back resting against the back sheet 12 and one or both of their arms overhead and one or both of their hands grasping the gripping bar 2. In this position, the user can apply force that is contained by the apparatus 1 and does not rely on attachment of the apparatus 1 to a wall or other support (other than the surface on which 15 it rests) for stabilization or support of the apparatus 1 and, in turn, the user. For example, the user may, with the buttocks supported by the support base 6 and positioned at a distance from the back sheet 12 and the back curved or cupped forward, grasp the gripping bar 2 from below and apply upward pushing force to the bar 2, such as to raise the legs upwardly, and the force vectors of this exercise will be contained by the 20 apparatus 1.

The apparatus 1 of the present invention, whether as the embodiment of Figs. 1-6 and 8-12 or as the embodiment of Fig. 7, can be folded for stowage or storage. In so folding the apparatus 1, the support base 6 is removed from connection to the foot members 44 of a

pair of side support frames 30, 32, 34 or 36 by sliding the support base 6 forward until its side channels 6b are disengaged from the associated attachments on the foot members 44. Contemporaneously, the gripping bar 2 is removed from the adjustment apertures 38, 40, or 44 on the associated side support frames 30, 32, 34, or 36. Then, when the support

5      base 6 and the gripping bar 2 have been disengaged from the side support frames, the side support frames are rotated on their associated vertical pivots with the front edge of each side support frame rotating inwardly and rearward toward the central portion of the freestanding rear support frame 10 until the front edges are at least flush under the top member 14 of the support frame 10. Preferably, the support base 6 and the gripping bar 2

10     are stowed in the space between the back sheet 12 and the side support frames, 30 and 32, or 34 and 36 before the side support frames are completely folded and closed. The brace members 52 can act as gripping handles in this folding operation and in handling the apparatus **1** for storage and stowage.

As described herein, the various members are rectangular in cross-section, except for the

15     support base 6 and the back support sheet 12 that are planar sheets.

It should be noted that various modifications may be made to the apparatus of the present invention without departing from the spirit and scope of the present invention, as noted in the following claims.